

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of) Group Art Unit: 1713
)
 Madabhushi et al.) Examiner: Reddick, M.
)
 Serial No.: to be assigned)
)
 Filed: December 26, 2001 (herewith))
)
 For: **POLYMERS FOR SEPARATION OF**)
BIOMOLECULES BY CAPILLARY)
ELECTROPHORESIS)
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)

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PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
 Washington, D.C. 20231

Sir:

Prior to examination on the merits, please amend the application as follows.

AMENDMENTSIn the specification:

At page 4, line 32, please replace "Figure 8 is" with --Figures 8A to 8F are--.

At page 5, line 1, please insert the following:

--Figures 9A to 9F are an electropherogram showing the separation and sequencing of a 4-color sequencing standard in a separation medium containing a 10% solution of polyvinylpyrrolidone. The numbers above the peaks refer to the base number in the sequence, and the letters above each peak refer to the identity of the base. --

At page 22, line 22, please replace "Fig. 8" with --Figures 8A-8F--.

At page 23, lines 1, 2, and 6-7, please replace "Fig. 9" with --Figures 9A-9F--.

In the Claims:

Please cancel claims 1-21 without prejudice.

Please add new claims 22-29 as follows:

--22. (New) A composition for separating analytes by capillary electrophoresis, the composition comprising:

a charge-carrying component; and

a surface interaction component comprising one or more polymers selected from the group consisting of N,N-disubstituted polyacrylamide and N-substituted polyacrylamide, wherein said N substituents are selected from the group consisting of C₁ to C₃ alkyl, halo-substituted C₁ to C₃ alkyl, methoxy-substituted C₁ to C₃ alkyl, and hydroxyl-substituted C₁ to C₃ alkyl;

wherein the sieving component and the surface interaction component are the same or different; and

wherein the composition does not include a crosslinked polymer gel.

23. (New) The composition of Claim 49 wherein the composition has a viscosity of less than 5000 centipose at 25°C.

24. (New) The composition of Claim 49 wherein the surface interaction component is poly(N,N-dimethylacrylamide).

25. (New) The composition of Claim 49 further including a denaturant.

26. (New) The composition of Claim 52 wherein the denaturant is selected from the group consisting of formamide, urea, and pyrrolidone.

27. (New) The composition of Claim 53 wherein the denaturant is pyrrolidone.

28. (New) A composition for separating analytes by capillary electrophoresis, the composition comprising:

a charge-carrying component; and

a surface interaction component comprising N,N-disubstituted polyacrylamide, wherein N substituents are selected from the group consisting of C₁ to C₃ alkyl, halo-substituted C₁ to C₃ alkyl, methoxy-substituted C₁ to C₃ alkyl, and hydroxyl-substituted C₁ to C₃ alkyl;

wherein the sieving component and the surface interaction component are the same or different; and

wherein the composition does not include a crosslinked polymer gel.

29. (New) A composition for separating analytes by capillary electrophoresis, the composition comprising:

a charge-carrying component; and

a surface interaction component comprising N-substituted polyacrylamide, wherein N substituents are selected from the group consisting of C₁ to C₃ alkyl, halo-substituted C₁ to C₃ alkyl, methoxy-substituted C₁ to C₃ alkyl, and hydroxyl-substituted C₁ to C₃ alkyl;

wherein the sieving component and the surface interaction component are the same or different; and

wherein the composition does not include a crosslinked polymer gel. --

REMARKS

Entry of this Preliminary Amendment prior to examination is respectfully requested. By this Amendment, Claims 1-21 are hereby cancelled and new Claims 22-29 are pending.

The specification is amended to conform to the formal drawings. Figure 8, as originally filed in the parent application, has been divided into six (6) Figures 8A to 8F for the purpose of enhancing the clarity of the figure. Figure 9, as originally filed in the parent application, has also been divided into six (6) Figures 9A to 9F for the purpose of enhancing clarity. The specification is further amended to include a description of originally-filed Figure 9, now Figures 9A-9F, and support for this amendment may be found at page 22, line 24 to page 23, line 9, and at original Figure 9.

No new matter is introduced by these amendments.

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APPENDIX A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

Paragraph beginning at line 32 of page 4 has been amended as follows:

Figures 8A to 8F are ~~Figure 8~~ is an electropherogram showing the separation and sequencing of a 4-color sequencing standard in a separation medium containing a 6.5% solution of poly(dimethylacrylamide). The numbers above the peaks refer to the base number in the sequence, and the letters above each peak refer to the identity of the base.

Paragraph beginning at line 22 of page 22 has been amended as follows:

The resulting electropherogram is shown in Figures 8A-8F ~~Fig. 8~~.

Paragraph beginning at line 1 of page 23 has been amended as follows:

The resulting electropherogram is shown in Figures 9A-9F ~~Fig. 9~~.

Paragraph beginning at line 2 of page 23 has been amended as follows:

No dye mobility correction was applied to the data shown in Figures 9A-9F ~~Fig. 9~~. Because the addition of fluorescent dyes to the DNA sequencing extension products alters the electrophoretic mobility of the associated DNA fragments, and because different dyes cause different mobility shifts, a “mobility correction” is required to normalize the electrophoretic mobility fragments containing different dyes. Because the data in Figures 9A-9F ~~Fig. 9~~ has not been corrected for these mobility shifts, the order of the peaks is offset somewhat. However, it is still possible to see that the requisite resolution of neighboring fragments has been achieved using the polyvinylpyrrolidone material.

In the claims:

Claims 1-21 have been cancelled.

APPENDIX B
CLEAN FORM VERSION

In the specification:

Paragraph beginning at line 32 of page 4 now reads as follows:

Figures 8A to 8F are an electropherogram showing the separation and sequencing of a 4-color sequencing standard in a separation medium containing a 6.5% solution of poly(dimethylacrylamide). The numbers above the peaks refer to the base number in the sequence, and the letters above each peak refer to the identity of the base.

New paragraph beginning at line 1 of page 5 reads as follows:

Figures 9A to 9F are an electropherogram showing the separation and sequencing of a 4-color sequencing standard in a separation medium containing a 10% solution of polyvinylpyrrolidone. The numbers above the peaks refer to the base number in the sequence, and the letters above each peak refer to the identity of the base.

Paragraph beginning at line 22 of page 22 now reads as follows:

The resulting electropherogram is shown in Figures 8A-8F.

Paragraph beginning at line 1 of page 23 now reads as follows:

The resulting electropherogram is shown in Figures 9A-9F.

Paragraph beginning at line 2 of page 23 now reads as follows:

No dye mobility correction was applied to the data shown in Figures 9A-9F. Because the addition of fluorescent dyes to the DNA sequencing extension products alters the electrophoretic mobility of the associated DNA fragments, and because different dyes cause different mobility shifts, a "mobility correction" is required to normalize the electrophoretic mobility fragments containing different dyes. Because the data in Figures 9A-9F has not been corrected for these mobility shifts, the order of the peaks is offset somewhat. However,

it is still possible to see that the requisite resolution of neighboring fragments has been achieved using the polyvinylpyrrolidone material.

In the claims:

New claims 22-29 read as follows:

22. (New) A composition for separating analytes by capillary electrophoresis, the composition comprising:

a charge-carrying component; and

a surface interaction component comprising one or more polymers selected from the group consisting of N,N-disubstituted polyacrylamide and N-substituted polyacrylamide, wherein said N substituents are selected from the group consisting of C₁ to C₃ alkyl, halo-substituted C₁ to C₃ alkyl, methoxy-substituted C₁ to C₃ alkyl, and hydroxyl-substituted C₁ to C₃ alkyl;

wherein the sieving component and the surface interaction component are the same or different; and

wherein the composition does not include a crosslinked polymer gel.

23. (New) The composition of Claim 49 wherein the composition has a viscosity of less than 5000 centipose at 25°C.

24. (New) The composition of Claim 49 wherein the surface interaction component is poly(N,N-dimethylacrylamide).

25. (New) The composition of Claim 49 further including a denaturant.

26. (New) The composition of Claim 52 wherein the denaturant is selected from the group consisting of formamide, urea, and pyrrolidone.

27. (New) The composition of Claim 53 wherein the denaturant is pyrrolidone.

28. (New) A composition for separating analytes by capillary electrophoresis, the composition comprising:

a charge-carrying component; and

a surface interaction component comprising N,N-disubstituted polyacrylamide, wherein N substituents are selected from the group consisting of C₁ to C₃ alkyl, halo-substituted C₁ to C₃ alkyl, methoxy-substituted C₁ to C₃ alkyl, and hydroxyl-substituted C₁ to C₃ alkyl;

wherein the sieving component and the surface interaction component are the same or different; and

wherein the composition does not include a crosslinked polymer gel.

29. (New) A composition for separating analytes by capillary electrophoresis, the composition comprising:

a charge-carrying component; and

a surface interaction component comprising N-substituted polyacrylamide, wherein N substituents are selected from the group consisting of C₁ to C₃ alkyl, halo-substituted C₁ to C₃ alkyl, methoxy-substituted C₁ to C₃ alkyl, and hydroxyl-substituted C₁ to C₃ alkyl;

wherein the sieving component and the surface interaction component are the same or different; and

wherein the composition does not include a crosslinked polymer gel.